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ACTIVITY OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE

The radio communiqués of the International Institute of Agriculture are transmitted between 3 and 3.10 p. m. on the following days: Tuesday, Italian ***and*** French; ***Thursday,*** English ***and*** German; ***Friday,*** Spanish.

They are broadcast from Rome II (245.5 m.) and Rome 2 RO 4 (25.4 m.).

The hour of broadcasts is Central European Time, which is one hour ahead of Greenwich Mean Time and 5 hours ahead of Eastern Standard Time in the United States.

Permanent Committee. — The Permanent Committee of the International Institute of Agriculture held its fourth meeting of the year 1939 on December 14 and 15. The Delegates of the following countries were present: Argentina, Bulgaria, Burma, Canada, Colombia, Egypt, Estonia, France, French West Africa, Algeria, Indochina, Madagascar, Morocco, Tunisia, Great Britain and Northern Ireland, Greece, Hungary, India, Iran, Italy, Italian East Africa, Libya, Italian Aegean Is., Japan, Latvia, Netherlands, the Netherlands Indies, Paraguay, Peru, Romania, Spain, Switzerland, Turkey, Union of South Africa, United States of America, Hawaii, Philippine Is., Puerto Rico, Virgin Is.

The delegates of the following States were unable to attend: Belgium, Belgian Congo, Germany, Ireland, Luxemburg, Yugoslavia.

At the commencement of the meeting, the Permanent Committee finally appointed Professor Ugo Papi, of the Rome University, as Secretary General of the Institute.

The Committee examined the Report of the Finance Commission, which on this occasion was of special importance, since it related to financial measures necessary to maintain the regular work of the Institute during the first months of the year 1940.

The Permanent Committee adopted all measures necessary to insure the continuance of the Institute's work, both in the field of its scientific publications and in its relations with Governments, other international bodies and agricultural circles in various countries.

The Committee also reviewed questions of internal organization, particularly those concerning the publications of the Institute and its advisory bodies. It also examined matters concerning the coming General Assembly of the Institute and an initiative undertaken by the Institute in agreement with the International Dairy Federation regarding the conclusion of four international conventions.

XVth General Assembly of the International Institute of Agriculture. — The Permanent Committee decided that the XVth General Assembly of the Institute should be opened on Monday, May 20, at 10 a. m. The agenda of the Assembly is as follows:

(1) Questions of procedure.
(2) Statement of the President.
(3) Report of the Secretary General.
(4) Financial Report of the Permanent Committee.

(5) Subsistence farming: a study of measures designed to improve the status of the farm population in the low income groups (proposal and report by the United States Government).

(6) Soil conservation.

(7) Evolution of succession rights in agriculture.

The Report of the Secretary General has four important appendices on the following subject: (*a*) the legislative protection of new plant varieties; (*b*) work of the Institute's library in the field of documentation; (*c*) international exchange of information on agricultural progress; (*d*) report of the Director of the International Forestry Centre.

During the General Assembly an international exhibition of agricultural films will be held. Further details of this exhibition will be given later.

Draft International Dairy Conventions. — For a number of years, national and international dairy circles (meetings of experts, national and international dairy congresses, etc.) have been studying some important problems relating to the dairy industry, the solution of which seemed possible and useful on international lines.

The International Dairy Federation, in which are grouped the authorized representatives of the dairy industry and which organizes the periodical International Dairy Congresses, has made itself the interpreter of the aims of dairying circles. It has proposed that the International Institute of Agriculture should summon international diplomatic conferences with a view to drawing up agreements on certain concrete problems susceptible of international solution. The International Institute of Agriculture, availing itself of the powers conferred upon it by Article 10, (*f*) of the International Convention of June 7, 1905, founding the Institute, has acceded to these requests. In this way the International Convention for the Standardization of Cheese Sampling and Analysis was signed at Rome, on April 26, 1934. Ratifications of this convention have been lodged at the Italian Ministry of Foreign Affairs by the following countries: Italy, France, Switzerland, Belgium, Norway, Finland, Netherlands, Sweden, Germany, Hungary and Greece. Encouraged by this achievement, the International Dairy Federation has requested the Institute to take the necessary steps for the conclusion of four new international conventions on the following points:

(1) Regulation of condensed milk manufacture and trade.

(2) Regulation of processed chesse manufacture and trade.

(3) Standardization of the international methods of analysis of condensed milk and milk powders.

(4) Regulation of milk powder manufacture and trade.

The Permanent Committee of the Institute, after acquainting itself with the scope of the proposals of the International Dairy Federation decided to adopt them and to proceed at once to preliminary consultation with Governments. It considered that, since the draft conventions had been prepared after long study by the experts of the International Dairy Federation, a preliminary meeting of experts at the Institute did not seem necessary, the technical content of the draft having been prepared by authorized representatives of the various countries. Accordingly, the Institute asked the Governments of Member States to express their views on the following points:

(1) Do they consider it possible and useful to secure a regulation of the four questions treated in the draft conventions ?

(2) Would they be prepared to take part in an International Diplomatic Conference held under the auspices of the International Institute of Agriculture for the purpose of concluding the international conventions contemplated ?

(3) Would they be disposed to acquaint the Institute with the modifications they wish to make in the drafts and with any other proposals and suggestions concerning these conventions ?

The Permanent Committee, at its December meeting, was in possession of replies from a number of Governments, but it considered that, before making its decision, it would be convenient to allow other Governments time to communicate their views. Further consideration was therefore postponed until the meeting to be held in March 1940.

INTERNATIONAL BULLETIN
OF PLANT PROTECTION

1940 No. 1

DISCOVERIES AND CURRENT EVENTS *

ITALIAN EAST AFRICA

Movements of the African Migratory Locust †

Harrar Government. On January 20, 1939 the Residency of Dodolà (Goba) reported the passing of large swarms of *Locusta migratoria migratorioides* from the south. On the 22nd, further swarms invaded the Ticciò zone, continuing towards the south on the 23rd. On January 30 and 31, numerous dense swarms passed over the Densà region towards the east. During the first decade of February, swarms from Auasc flying in the direction of Urutà were reported; other swarms from the north-east passed over Ticciò. On February 12, some locusts passed over different zones of Arussi, Bolè and Cercer.

In the first decade of March, several swarms were observed in the Commissariat of Arussi, specially in the Ticciò zone, flying in various directions, and in the Adaba Sella Herà zone, Sciotera region. During the last fortnight of March, invasions were reported in the Ghimir, Goba and Gore zones and also at the beginning of April; in the Hadama zone, further invasions were reported, by swarms from the south-east, which then crossed the Auasc taking a westerly and easterly direction. Swarms were also observed in the Hadama territory in the last decade of April; the insects came from the south-east and continued towards the north-east.

During the first decade of May, locusts from Dancalia flew over the Billalo zone, over Villa Baka, Gascia and Asba Littorio. Other swarms from Gota settled in the Herrer zones, and continued towards Dire Dawa. Further swarms from the south-west crossed the Baka zone near Miesso towards the south-east; others again, from south-south-west, crossed the Arba zone, along the railway line. In the second decade of May, egg-laying was observed in Cercer territory, particularly on May 13 when swarms flew over Harrar and settled at Combolcià. During the second and third decade of the same month, the starting-point of the invasion was considered to be the Hadama Territory, around which developed the hopper bands and swarms from the east and south going north and west. On May 30, a swarm passed over the Aubarre zone, in the Commissariat of Giggiga.

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the Government General of Italian East Africa, Addis Ababa, transmitted to the Institute by the Ministry of Italian Africa, Rome.

Shoa Government. On February 12, swarms from the north-east settled outside Addis Ababa (Maccanise) and caused some damage, and then continued towards the west. On February 14, some swarms settled near Uolkittè; on the same day past Balti near Sukuri, a swarm about 2 km. long and a hundred metres wide was observed. On February 23, a swarm passed over Deddestò towards the south-west.

On April 17, swarms passed Sulultà. Towards the end of May, some hopper bands and nymphs came into activity in the territory situated between Biscofitù and Moggio, following a westerly and northerly direction. During the first decade of June, the situation remained unchanged.

Galla and Sidamo Government. This territory was seriously attacked in April 1939 by swarms from the west and north-west; they invaded the zones of Beni Sciangul, Wollega, Lekempti and Jimma where they damaged the crops. Observations carried out along the frontier zones showed that these swarms came from the Anglo-Egyptian Sudan.

ESTONIA

The Elm Disease in the Country *

Ceratostomella ulmi (Schwarz) Buisman (*Graphium ulmi* Schwarz) probably made its appearance in Estonia between 1930 and 1935.

This fungus may now be observed throughout the country (11 districts). Many elms have already withered in consequence of the attacks of this parasite.

GREECE

Scale Insects Observed on Citrus in the Island of Crete †

With a view to protecting citrus cultivation in Greece, which is becoming of increasing importance, both in extent and in the export trade of the country, against diseases and pests, and in particular, against scale insects (*Coccidae*), it was considered advisable to identify the species already existing in the country and to determine the districts affected by each.

Dr. Jean Koronéos, well-known expert on scale insects, now working at the Benaki Phytopathological Institute, was requested to visit the regions where citrus cultivation is extensive in order to indentify the scale insects found and to ascertain their importance in regard to damage caused.

Dr. Koronéos began his investigation in the Ionian Isles, the Aegean Islands and the island of Crete.

* Communication from Professor E. LEPIK, Director of the Phytopathological Experiment Station of the University, Tartu, Estonia.

† Communication from the official correspondent of the Institute, Mr. A. AYOUTANTIS, Chief of the Phytopathological Service, Ministry of Agriculture, Athens, Greece.

Investigations were begun in the islands as measures for preventing the introduction of new dangerous scale insects or the spread of the species already prevalent, can more easily be carried out.

The results of Dr. Koronéos' results are summarized as follows:—

Species Observed.

Chrysomphalus dictyospermi.
Chrys. (Aonidiella) aurantii.
Parlatoria zizyphi.
Lepidosaphes pinnaeformis (L. beckii).
Lecanium (Saissetia) oleae.
L. (Coccus) hesperidum.
Ceroplastes rusci.
Pseudococcus citri.
Icerya purchasi.

Area Affected and Damage Caused by the Above-Mentioned Scale Insects.

Chrysomphalus dictoyospermi. Probably of recent introduction, either by pot plants, chiefly palms, or by citrus plants from other regions of Greece. Found throughout the Department of Canea, with the exception of a few districts.

Up to the present, this species is localized in the Department of Canea, where it is very prevalent and causes heavy damage. It was not seen in the other Departments of Crete.

Chrys. aurantii. Has been prevalent in Crete for some considerable time. Is found chiefly on the trunks, branches, leaves and fruit. In many cases, it is very widespread and harmful. In the Canea district, it appears to be replaced by *Chrys. dictyospermi. Citrus medica* and *C. limonum* are the species chiefly attacked; *C. deliciosa* (*C. nobilis*) only very slightly.

Parlatoria zizyphi. This species is found practically throughout the island of Crete, with the exception of the Department of Lassithi. In all the other departments it is very widespread and harmful.

Lepidosaphes pinnaeformis. Only observed at Spilia Kissamou, in the Department of Canea, and in the communal nursery of Iraklion (Candia) where it is very widespread. Probably introduced from other regions of Greece and perhaps independently in each case observed. It was not seen elsewhere in Crete.

Lecanium oleae. This species is very widespread throughout the island of Crete and is found on all *Citrus* species. It causes considerable damage. Especially prevalent in the Department of Canea.

L. hesperidum. This species is also found throughout the island of Crete, but is much less prevalent and does not spread so extensively as *L. oleae.*

It is very prevalent in the Hierapetra and Hagios Nicolaos districts in the Department of Lassithi and in the Department of Rethymno. On the whole, it is not very serious.

Ceroplastes rusci. This species is observed sporadically on *Citrus* spp. and is of little importance.

Pseudococcus citri. This species was found at Alikianou in the Department of Canea and at Hierapetra in the Department of Lassithi. It causes damage but does not appear to spread much. It is much less harmful than the first-mentioned species (*Chrysomphalus, Parlatoria zizyphi, Lecanium oleae*).

Icerya purchasi. This species is found everywhere, but attack is slight, owing to *Rodolia* (*Novius*) *cardinalis.*

Some Scale Insects Observed on Other Crops.

Aspidiotus hederae. Found on several occasions on carob trees, heavily infested causes damage throughout the island of Crete.

Parlatoria oleae. This species is not widespread and causes no damage to fruit trees in Crete as in continental Greece.

The results of the investigations to be carried out in the other regions of Greece on the species of scale insects found on *Citrus* spp. will be communicated in due course.

THE NETHERLANDS

Colorado Beetle Situation in 1939 *

Owing to the absence of the strong south winds, no heavy invasion of *Leptinotarsa decemlineata* from Belgium and France took place as in 1938. The more southerly provinces, however, were infested.

The region affected is more or less the same as in 1938, *i. e.*, to the south of the Rhine, apart from a small superficial focus 1 km. to the north of the river.

The foci number 242, of which 205 may be considered as superficial (one or a few adults, or a small number of small larvae) and 37 as being attached foci, spread over 121 communes.

On the trap-plants, planted around the attached foci found in 1938, in 9 cases, one or several adults have been captured. All these foci may be considered as extinct.

The situation at the moment appears more favourable than in 1938. In the part of the country lying south of the Rhine, all potato crops, in the fields and in gardens, have been sprayed three times with a 4 per cent. lead arse-

* Communication from the official correspondent of the Institute, Mr. N. VAN POETEREN, Engineer, Chief of the Phytopathological Service of the Netherlands, Wageningen.

nate mixture. This treatment was carried out by the growers or by the communal Services, but the lead arsenate was distributed free by the State. The treatment of new foci is assured by the State.

SOUTHERN RHODESIA

Locust Invasion, 1932-39 *

Monthly Report No. 81. August, 1939.

Movements of red locust (*Nomadacris septemfasciata*, Serv.) swarms have been reported in the following districts during August, namely: Lomagundi, Mazoe, Marandellas, Hartley, Chibi, and Matobo.

The swarms have been described as from 'small' to 'very large'.

Two swarms are stated to have entered the Chibi district from Mozambique territory on the 1st. The remaining reports appear to refer to swarms already within the Colony.

The general position is judged to be similar to that in August of last year.

No damage has been reported.

Monthly Report No. 82. September, 1939.

Swarms of *N. septemfasciata* have been reported during the month from the districts of Sebungwe, Lomagundi, Mazoe, Salisbury, Hartley, Gwelo, Marandellas, Umtali, Melsetter, Chibi, and Insiza.

The swarms have been described as from 'small' to 'very large'. No definite trend of flight is apparent from the reports.

Such specimens as have been received have not been in breeding condition.

Sixty acres of wheat are stated to have been destroyed on a farm in the Melsetter district.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Italian East Africa. — Decree No. 803 of September 4, 1939 relative to the regulations for the conservation and management of coffee estates in Harar, provides, *inter alia*, that proprietors must replace at their own expense all plants removed because of disease, decay or poor growth.

On the appearance of parasitic diseases, coffee growers must immediately inform the local Government authorities who in turn will advise the Agricultural Office or the Agricultural Sections.

* Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

Coffee growers are required to carry out the instructions issued by the Agricultural Services for disease control. If not executed within a certain period, control operations will be carried out by the Agricultural Services, expenses to be paid by the proprietor.

For crops attacked by rust (*Hemileia vastatrix*) the measures to be adopted are:—

(*a*) collection and burning of diseased leaves in cases of incipient infection;

(*b*) burning of stunted weak plants easily susceptible to the disease;

(*c*) spraying with copper mixtures (if possible adherent solutions)—after the destruction of the centres of infection—of the foliage of the remaining trees.

Control of termites and ants according to the instructions issued by the Government Services is alzo compulsory. (*Giornale Ufficiale del Governo Generale dell'Africa Orientale Italiana e Bollettino Ufficiale del Governo dello Scioa*, Parte prima, Addis Abeba, 27 settembre 1939, anno IV, n. 23, pp. 894-895).

Germany. — A Decree of July 1, 1939 issued with a view to preventing the introduction of diseases and pests of plants cultivated in former Austria (Ostmark) and in the Sudeten districts (Sudetenland) prohibits the import of the following plants:—

(*a*) Coniferae belonging to the genera *Abies, Picea, Pinus, Pseudotsuga,* and *Tsuga;*

(*b*) Carnations (plants and cuttings);

(*c*) Rooted plants, cuttings and any other living part of the genus *Ulmus* and of the Canadian poplar (*Populus canadensis*).

The import of carnations (cut flowers) is prohibited during the period March 15 to November 30.

Some products may only be imported if free from certain specified diseases and pests. Mention is made of (*a*) cherries: the cherry fruit fly [*Rhagoletis cerasi*]; (*b*) fresh fruits, living plants and parts of same: San José scale [*Aspidiotus perniciosus*] and the apple maggot [*Rhagoletis pomonella*]; (*c*) potatoes: wart disease [*Synchytrium endobioticum*]; (*d*) bulbs of horticultural plants: *Pseudomonas hyacinthi, Sclerotinia bulborum, Sclerotium tuliparum, Botrytis tulipae, Penicillium* sp., *Anguillulina dipsaci, Merodon* sp., *Eumerus* sp., and *Rhizoglyphus echinopus.*

The above-mentioned products may only be imported through specially authorized custom-houses, and will be examined by officers of the Plant Inspection Service. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. August 1939, Bd. XI, Nr. 4, S. 93-95).

*** In conformity with the Decree of August 8, 1939 grapes are included among the fruits classed as ' berries ', which according to the Decree of May 24, 1939 [see this *Bulletin*, 1939, No. 9, p. 211] are exempted from the measures prescribed by the Decrees relative to the introduction of the San José scale [*Aspidiotus perniciosus*]. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang September 1939, 19. Jahrg., Nr. 9, S. 91).

*** A provision dated August 10, 1939 establishes that in 1940 not more than 1200 ha. may be planted with the 'Erstling' variety, non-resistant to the potato wart disease [*Synchytrium endobioticum*], for seed.

Detailed provisions establish the system to be employed in dividing this very reduced area among the different provinces and farms specializing in the production of seed potatoes. (*Ibid.*, S. 90).

*** A Notification of August 14, 1939 states certain exceptions to the Decree of October 8, 1937 [see this *Bulletin*, 1938, No. 2, pp. 28-29] relative to the control of potato wart disease [*Synchytrium endobioticum*].

The non-resistant variety 'Erstling' may still be cultivated in 1941 in certain districts recognized as special centres for the production of very early potatoes. Of the area allotted for early varieties, however, only 35 per cent. may be allowed for the 'Erstling' variety, the remaining 65 per cent. to be planted with early varieties resistant to wart disease such as 'Primula', 'Frühmölle', 'Frühbote', 'Früheste Delikatess' or 'Sieglinde'.

Until further notice, seedlings of the varieties 'Allerfrüheste Gelbe' and 'Centifolia', non-resistant to wart disease, may still be produced after July 1, 1940 for export and for farms which will have received a special authorization. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. September 1939, Bd. XI, Nr. 5, S. 117-118).

*** By Decree of August 15, 1939, the Minister of Agriculture, taking into consideration that the potato varieties resistant to wart disease [*Synchytrium endobioticum*] have almost entirely replaced the non-resistant varieties and that consequently the danger of this disease spreading is now considerably reduced, agrees that the seal of the Plant Protection Service need no longer be applied to packages and sacks of potatoes imported by rail; the official seal is only necessary for the truck. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang September 1939, 19. Jahrg., Nr. 9, S. 91).

*** By Decree of August 21, 1939, fresh fruits and vegetables used by the international Wagons-lits Company are exempted from the prescriptions relative to the introduction of the San José scale [*Aspidiotus perniciosus*] and apple maggot [*Rhagoletis pomonella*]. The quantities brought, however, must not exceed the requirements of the restaurant service. (*Ibid.*, S. 91).

Germany (Bohemia and Moravia Protectorate). — Decree No. 45 of February 27, 1939 indicates in detail the control measures to be taken against the Colorado beetle (*Leptinotarsa decemlineata*).

Every land-owner, and any person in general, who has found or suspects the presence of the Colorado beetle in a particular piece of land must report it within 24 hours, providing at the same time a specimen of the insect or the object giving rise to his suspicions (e. g. a nibbled leaf).

The Burgomaster of the commune must at once notify the local Experiment Station, sending the suspected specimen and take the necessary measures to ensure that no potatoes, plants or soil leave the suspected land.

If the Experiment Station confirms the presence of the Colorado beetle, it must notify the authorities in the commune concerned and to those of the district within the next 24 hours.

The Burgomaster will publish the information, in the usual way, that the Colorado beetle has been found in the district, at the same time indicating exactly in what place and giving the name of the land owner. A notice warning the public of the presence of the beetle in to be posted up on the property at once.

The district authorities will declare the whole commune as an infested area and all those within a radius of 15 kilometers as threatened zones.

The Minister of Agriculture will declare the infested and threatened areas as a closed zone in which a series of well defined measures must be taken:

(*a*) Prohibition of transport or movement of living Colorado beetles, potatoes, other plants, soil, etc. from the infested zone.

(*b*) Destruction of the beetle on the infested land.

(*c*) Disinfection of the land.

(*d*) Compulsory planting of potatoes on the infested soil and compulsory examination of the soil.

(*e*) The institution of 'Colorado beetle days' devoted to collecting and destroying the beetles.

(*f*) Compulsory notification of all land planted with potatoes.

The Minister of Agriculture may make other provisions. He is also empowered to enlist the help of schools, 'workmens' organizations, etc. for the control of the Colorado beetle.

The introduction and transport of living Colorado beetles are prohibited.

Similarly, it is forbidden to import living plants or parts of living plants, plant refuse, etc. that are infested with the Colorado beetle. This prohibition extends also to packing material and to every object that has been in contact with infected plants.

Finally, it is prohibited to import living plants, parts of living plants, plant refuse, packing materials or anything that has been in contract with them if they come from a country known to be infested with Colorado beetle.

The Minister of Agriculture may make exceptions to this last regulation if the consignment is accompanied with a certificate of condition and origin of which an example is given as an annexe to the present decree. An examination by an official of a Station designated by the Minister of Agriculture will be necessary on entry. The procedure for inspection is given in detail.

The transit of consignments coming from a district known to be infested with Colorado beetles is permitted on condition that the packages are securely closed and intact, or if the transport takes place in tightly closed vehicles.

The Decree of February 25, 1938 and the modification introduced by the Decree of June 24, 1938 [see this *Bulletin*, 1938, No. 6, p. 128, and 1939, No. 3, p. 58] are rescinded. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. November 1939, Bd. XI, Nr. 6, S. 137-145).

*** According to a Notification of March 23, 1939 the countries covered by the Decree of February 27, 1939 (see above) and considered as infested by the Colorado beetle are the following:— Belgium, France, the Netherlands, Luxemburg, Canada, Germany, United States of America, and Switzerland. (*Ibid.*, S. 146).

*** Another Notification of the same date explains the exceptions that are made to the regulation prohibiting the importation of plants, etc. from countries infested with the Colorado beetle.

The importation of fresh fruit, vine cuttings, flower bulbs, and a whole series of different plants is allowed. The list includes 93 scientific names of plants (generic and specific).

It is also permissible to import cut flowers between October 1, and May 15, and azaleas and araucarias from January, to April 15. The consignments however must be accompanied by a certificate of condition and origin and an example of such a certificate is appended to the present decree. (*Ibid.*, S. 146-147).

*** Under a notification of May 19, 1939 the provisions of the Decree of August 9, 1935 [see this *Bulletin*, 1936, No. 3, p. 58] made with a view to preventing the introduction of San José scale (*Aspidiotus perniciosus*) are extended to Slovakia, the presence of this insect having been discovered there. It is therefore forbidden to import from Slovakia any living plants, vine cuttings, grafts or other parts of living plants, including plant refuse or material that has been in contract with such products, especially barrels, boxes, sacks and other materials and packing. (*Ibid.*, S. 148-149).

Germany (Brunswick). — A Decree of September 9, 1939, concerning the protection of bees forbids the use of arsenicals on fruit trees and horticultural and field crops when they are in flower; in particular this applied to asparagus and rape.

Fruit trees growing near apiaries may only be sprayed with copper or arsenical sprays in the evening after the bees have returned and preliminary warning must be given to the bee keeper.

These regulations do not apply to vines or to the treatment of potato crops with arsenicals or to crops grown for scientific and experimental purposes. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. November 1939, Bd. XI, Nr. 6, S. 136-137).

Germany (Sudetenland). — By Decree of August 23, 1939, the trade in poisons is regulated by the Police Ordinance of January 11, 1938 [see this *Bulletin*, 1938, No. 4, p. 78] that is in force in Prussia. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang November 1939, 19. Jahrg., Nr. 11, S. 105).

Australia (Western Australia). — On September 27, 1939 wild radish (*Raphanus raphanistrum*) and double gee (*Emex australis*) have been declared to be noxious weeds within the boundaries of the Mukinbudin Road Board and Preston Road Board districts respectively. (*Government Gazette of Western Australia*, Perth, September 29, 1939, No. 47, p. 1714).

Canada. — The Pest Control Products Act (Chapter 5, 1927 and chapter 21, 1939) regulates the sale of products used in controlling agricultural pests. (*The Pest Control Products Act (Office Consolidation of the Agricultural Pests' Control Act, 1927, as amended in 1939). Administred by the Plant Products Division, Production Service*, Ottawa, 1939, 13 pp.).

Spain. — By ' Orden ' issued on September 22, 1939, the measures to be adopted in this country for the locust control have been specified. (*Boletín Oficial del Estado*, Madrid, 27 septiembre 1939, año IV, núm. 269, págs. 5343 a 5345).

United States of America. — By Amendement No. 1 to the rules and regulations (seventeenth revision) supplemental to Notice of Quarantine No. 48 on account of the Japanese beetle [*Popillia japonica*], approved on June 22, 1939 and effective on July 1, 1939, the regulations 3, 5, 6, 7 and 9, which were promulgated on February 16, 1939 [see this *Bulletin*, 1939, No. 11, p. 264], are amended. (*B. E. P. Q. — Q. 48*, [Washington, D. C., 1939], 9 pp.).

*** An Act approved on August 9, 1939 authorizes the Secretary of Agriculture to prepare plans for the eradication and control of the pink bollworm [*Pectinophora* (*Platyedra*) *gossypiella*] affecting cotton within the United States and Mexico. ([*Public-No. 351-76th Congress*]. [*Chapter 612-1st Session*]. [*H. R. 4638*]. [Washington, D. C., 1939], 1 p.).

Italy. — A specialized course in plant diseases has just been instituted under the auspices of the Ministry of Agriculture and Forests at the University of Pisa. This course will commence with the academic year 1939-40.

Its purpose is to allow young graduates in agriculture, forestry, natural sciences and biology to complete their studies in plant diseases and their identification so that a high standard of professional training may be assured.

Jamaica. — By Government Notice No. 712 published on September 10, 1938, the transhipment of citrus fruits from Spanish Honduras and British Honduras at the port of Port Antonio will be allowed *inter alia* on the condition that the fruit must be free from pest and disease. (*Jamaica, British West Indies. Government Notice No. 712. Jamaica Gazette Extraordinary, 10th September, 1938*, 1 p.).

Mauritius. — Proclamation No. 21 of August 24, 1939 declares that all citrus trees growing on any land within the Island of Rodrigues are infected with citrus canker (*Pseudomonas citri*).

The Director of Agriculture or any person deputed by him may at any time inspect any lands where citrus trees grow and cause the destruction, removal, disposal or treatment of any plants found to be infected or suspected of being infected with the disease. (*Legal Supplement to the Official Gazette of the Mauritius Government, No. 51 of August 26th, 1939. Proclamations 1939*, pp. 37-38).

Mexico. — ' Acuerdo ' of June 29, 1939 prescribes the general regulations regarding the control of Sigatoka disease [*Cercospora musae*], locally known as ' chamusco ' [see also this *Bulletin*, 1939, No. 11, p. 266]. (*Diario Oficial*, México, 27 de julio de 1939, tomo CXV, núm. 23, págs. [1] a 3).

New Zealand. — By Special Order made by the Clutha County Council on August 1, 1939 and published by the Minister of Agriculture on September 1, 1939, ragwort [*Senecio jacobaea*] is declared to be a noxious weed within the said County. (*The New Zealand Gazette*, Wellington, September 14, 1939, Numb. 112, p. 2496).

Union of South Africa* — By Proclamation No. 155 of July 22, 1939, from and after February 1, 1940, the Schedule to Proclamation No. 286 of November 6, 1936 [see this *Bulletin*, 1937, No. 5, pp. 99-102] is amended by the insertion after sub-paragraph (*b*) of paragraph (2) of clause 4 of the following new sub-paragraph:—

' (*c*) A certificate from the Department of Agriculture of the declared country of origin, or a certificate from some official institution in that country which the Minister has agreed to recognise, stating that the crop from which the potatoes were derived was officially inspected in the field and that the degree of freedom from virus diseases was sufficiently high to ensure the suitability of the progeny for seed purposes, and stating further that the said crop was not grown in the vicinity of any unhealthy potato crops or other plants infected with potato virus diseases '.

Uruguay. — The Decree No. 380/935 of May 24, 1939, modifying the Decree No. 380/935 of September 29, 1937 [see this *Bulletin*, 1938, No. 3, p. 57] regulating the agricultural insecticide and fungicide trade, makes it obligatory to have all labels used to mark the above preparations approved. The text of such labels must conform to the results of official trials and analyses. (*Diario Oficial de la República Oriental del Uruguay*, Montevideo, 10 de junio de 1939, tomo 135, núm. 9829, pág. 435-A).

* Communication from the Department of Agriculture and Forestry, Division of Entomology, Pretoria, Union of South Africa to the International Institute of Agriculture.

RECENT BIBLIOGRAPHY

APPEL, O[tto]. (Herausgegeben von). Handbuch der Pflanzenkrankheiten. Berlin, Verlag von Paul Parey, 1939, VI. Bd.: Pflanzenschutz. Verhütung und Bekämpfung der Pflanzenkrankheiten, 4. Lief., S. 209-400, Abb. 69-182. RM 11.60.

[For the three first issues of the sixth volume, see this *Bulletin*, 1939, No. 3, p. 58.

This fourth issue contains:—

Dritter Abschnitt: Die technische Mittel des Pflanzenschutzes.

B. Spritzgeräte von Hermann Zillig (Forsetzung und Schluss, S. 209-219).

C. Stäubegeräte von Hermann Zillig (S. 219-233).

Motorverstäuber von Hermann Voelkel (S. 233-259).

D. Flugzeug von Hermann Voelkel (S. 260-286).

E. Vergasungs–,Vernebelungs–Verbrennungsgeräte von Hermann Zillig (S. 287-303).

Vierter Abschnitt: Die Bewertung des Saat– und Pflanzgutes.

Allgemeines. Begriffsumgrenzung von Otto Schlumberger (S. [304]-313).

I. Die Feststellung übertragbarer parasitärer Krankheiten und Schädlinge am Saatgut von Otto Schlumberger (S. 313-342).

II. Die Prüfung der Echtheit und Reinheit widerstandsfähiger Sorten von landwirtschaftlichen Kulturpflanzen von K. Snell (S. 343-361).

Fünfter Abschnitt: Anbau und Züchtung krankheitsresistenter Sorten.

I. Einleitung von E. Köhler (S. [362]-370).

II. Resistenz gegen pflanzliche Parasiten von E. Köhler (S. 370-393).

III. Resistenz gegen Vira von E. Köhler (S. 393-398).

IV. Resistenz gegen tierische Parasiten und Schädlinge von E. Köhler (S. 399-400)].

AYYAR, T. V. Ramakrishna. The hairy caterpillar pests of S. India. *The Madras Agricultural Journal*, Coimbatore, S. India, 1939, Vol. XXVII, No. 4, pp. 127-134, 1 pl. References, p. 134.

BAKER, R. E. D. Notes on the diseases and fruit rots of tomatoes in the British West Indies. *Tropical Agriculture*, Trinidad, B. W. I., 1939, Vol. XVI, No. 11, pp. 252-257. References, p. 257.

BEALL, Geoffrey, STIRRETT, Geo. M., and CONNERS, I. L. A field experiment on the control of the European corn borer, *Pyrausta nubilalis* Hubn., by *Beauveria Bassiana* Vuill. II. *Scientific Agriculture*, Ottawa, Canada, 1939, Vol. XIX, No. 8, pp. 531-534. References, p. 534.

BRÉDO, H.-J. Catalogue des principaux insectes et nématodes parasites des caféiers au Congo belge. *Bulletin Agricole du Congo Belge*, Bruxelles, 1939, vol. XXX, nº 2, p. [266]-307, fig. 51-83.

BUNTING, B. Rat control on oil palm estates. *The Malayan Agricultural Journal*, Kuala Lumpur, 1939, Vol. XXVII, No. 10, pp. 403-407. References, p. 407.

CANDIOLI, Primo. Contributo alla conoscenza delle cause della mortalità del ciliegio. Prima nota. *Note di Frutticoltura*, Pistoia, 1939, anno XVII, n. 11, pp. [153]-163, figg. 42-44; n. 12, pp. 172-185, figg. 45-48.

[The causes of the phenomenon are, in order of decreasing importance:—(*a*) drought; (*b*) root-stock not adapted to the land; (*c*) water lying in the land; (*d*) soil infection; (*e*) fungus diseases; (*f*) physiological disequilibrum].

CHARRIN, Victor. Emploi de l'oxyde de fer et du bore. *La Vie Agricole et Rurale*, Paris, 1939, 29e annee, nº 6, p. 243-244

CHIZZALI, F. Contributo alla conoscenza di alcune cause che riducono o deprezzano la produzione legnosa delle colture di pioppo con particolare riguardo ai danni prodotti dai tarli. *Cellulosa*, Roma, 1939, anno III, n. 5, pp. 245-271, figg. 1-34, 1 tav. a col.
[Non-parasitic disorders; *Pollaccia elegans, Dothichiza populea; Melasoma populi, Stilpnotia salicis, Arpia vinula, Cryptorrhynchus lapathi, Trochilium apiforme, Sciapteron tabaniforme, Saperda carcharias, Cossus cossus, Phloemyzus passerinii*, etc.].

CIFERRI, R[affaele]. Il marciume delle infiorescenze della palma da dattero nella Libia occidentale. *L'Agricoltura Coloniale*, Firenze, 1939, anno XXXIII, n. 10, pp. [571]-572. Bibliografia, p. 572.
[See this *Bulletin*, 1939, No. 11, p. 268. – *Fusarium* spp.]

COOK, Melville Thurston. Entermedades de las plantas económicas de las Antillas. Traducido directamente del manuscrito original por José I. Otero. *Monografía de la Universidad de Puerto Rico. Ciencias Físicas y Biológicas. Série B. Núm. 4*, Río Piedras, Puerto Rico, 1939, 530 págs., 1 retrato, 171 figs.

CREUZBURG, U. Die Aufgaben des Pflanzenschutzamtes für die Südmark. *Angewandte Botanik*, Berlin 1939, Bd. XXI, Heft 5, S. 406-414.

DE GARCIA CABRAL, Raul Vasco. Uma bacteriose dos limões. *Revista Agronómica*, Lisboa, 1938, vol. XXVI, nº 3, pags. [230]-252, figs. 1-7. Literatura citada, pags. 249-252.
[With summary also in English. — A disease of the lemons caused by *Phytomonas syringae*].

DE LOURDES D'OLIVEIRA, Maria. « Mosaico » da faveira. *Revista Agronómica*, Lisboa, 1938, vol. XXVI, nº 3, pags. [319]-320, figs. 1-2.

GHIDINI, Gian Maria. Materiali per una bibliografia zoologica dell'Africa Orientale Italiana. *Rivista di Biologia Coloniale*, Roma, 1939, vol. II, fasc. IV, pp. [305]-310.
[See the previous bibliography of the same author in this *Bulletin*, 1939, No. 10, p. 246].

GOIDÀNICH, Gabriele. Il cancro del larice prodotto da *Dasyscypha Willkommii*. *La Rivista Forestale Italiana*, Roma, 1939, anno I, n. 9, pp. 30-35, figg. 1-8. Bibliografia, p. 8.

GÓMEZ MENOR y ORTEGA, Juan. Las plagas de la vid (Vitis vinifera) en la República Dominicana. *Revista de Agricultura*, San Cristóbal, Prov. Trujillo, República Dominicana, 1939, vol. XXX, no. 119, págs. 374 a 378, 3 figs. 1 lám. [*Oidium tuckeri, Plasmopara viticola, Phytoptus vitis, Tetranychus bimaculatus, Macrosiphum viticola, Aspidiotus viticola, Chrysomphalus aonidum, Hemichionaspis minor, Ceroplastes floridensis, Selenothrips rubrocinctus, Pholus vitis*].

GRATIA, A., et MANIL, P. Recherches sur les virus des plantes. (Premier mémoire). *Archiv für die gesamte Virusforschung*, Wien 1939, Bd. I, Heft 1, S. [21]-45, 1 Abb. Bibliographie, S. 44-45.

GUFFROY, Ch. Glanures mycologiques. II. *Bulletin trimestriel de la Société mycologique de France*, Paris, 1939, tome LV, fasc. 2, p. [159]-165.
[A list of parasitic species collected in certain French departments].

HADERT, Hans. Holzschutz und Holzveredelung. Berlin, Otto Elsner Verlagsgesellschaft, 1938, 224 S., 36 Originalholzmustern, 381 Abb., 9 Taf.

HOPKINS, J. C. F. Mycological notes. 13. Diplodia and field hygiene. *The Rhodesia Agricultural Journal*, Salisbury, 1939, Vol. XXXVI, No. 11, pp. 814-818.
[*Diplodia zeae*].

HOUINS, Franz. Les Scolytides et les Sirex, ennemis du bois d'œuvre de nos grandes essences forestières. *Bulletin de la Société Centrale Forestière du Belgique*, Auderghem, 1939, 46me année, nos 10 et 11, p. [401]-409.
[*Trypodendron lineatum*, *T. domesticum*, *Xyleborus saxeseni*, *X. monographus*, *Sirex gigas*, *S. spectrum*, *S. juvencus*].

IMPERIAL INSTITUTE. CONSULTATIVE COMMITTEE ON INSECTICIDE MATERIALS OF VEGETABLE ORIGIN. Quarterly bibliography on insecticide materials of vegetable origin, No. 7 (April to June 1939). *Bulletin of the Imperial Institute*, London, 1939, Vol. XXXVII, No. 3, pp. 405-412.
[See also this *Bulletin*, 1939, No. 8, p. 189].

JONES, George D. Grasshopper outbreaks in Missouri. *University of Missouri. College of Agriculture. Agricultural Experiment Station. Bulletin 406*, Columbia, Missouri, 1939, 22 pp., 12 figs. Bibliography, pp. 21-22.
[*Melanoplus* spp., *Schistocerca americana*].

KALSHOVEN, L. G. E. Een boktorlarf als boorder in levende en doode djatiboomen. (Monohammus rusticator Fab., fam. Lamiidae). *Tectona*, Buitenzorg, 1939, deel XXXII, afl. 4/5, blz. 321-337, 1 fig., pl. I-III. Literatuur, blz. 335-336.
[In Dutch, with title and summary also in English:— 'A longicorn borer in living and dead teak trees: Monohammus rusticator Fab., fam. Lamiidae'. — A beatle injurious to *Tectona grandis*].

KLOTZ, L. J., and TURRELL, F. M. Rind structure and composition in water spot of navel orange. *The California Citrograph*, Los Angeles, 1939, Vol. 25, No. 2, pp. 45, 56-57, figs. 1-5. Literature cited, p. 57.
[A non-parasitic disease].

KÖHLER, Erich. Über das Auftreten abweichender Varianten bei den Cs-Stämmen des Kartoffel-X-Virus. *Archiv für die gesamte Virusforschung*, Wien 1939, Bd. I, Heft 1, S. [46]-69, 13 Abb. Literatur, S. 69.

LASAROFF, Assen W. Beitrag zur Biologie und Bekämpfung der im Obstbau schädlichen Sackträgermotten (*Coleophora coracipenella* Hb., *C. hemerobiella* Sc. und *C. anatipenella* Hb.) *Die Gartenbauwissenschaft*, Berlin 1939, 14. Bd., 1. Heft, S. [77]-140, Abb. 1-37. Literaturverzeichnis, S. 138-140.

LOUGHNANE, James B. *Myzus ornatus* a vector of potato viruses. *Nature*, London, 1939, Vol. 144, No. 3653, pp. 785-786.

LEVER, R. J. A. W. Vegetable garden pests and their control. *Agricultural Journal*, Suva, 1939, Vol. 10, No. 1, pp. 11-17.

LEVER, R. J. A. W. Entomological notes. *Agricultural Journal*, Suva, 1939, Vol. 10, No. 1, pp. 17-20.
[Contains:—
(1) The avocado beetle borer and mealy bug. [*Xyleborus morstatti* and *Icerya seychellarum*].
(2) Termites or 'white ants'. [*Eutermes olidus*, *Coptotermes acinaciformis*, *Kalotermes repandus*, *K. taveuniensis*, *Cryptotermes buxtoni*, [*Prorhinotermes inopinatus*].
(3) Pleurotropis parasite in Tonga and Western Samoa. [*Pleurotropis parvulus* as parasite of *Promecotheca reichei*].
(4) Additional notes on diet of the giant toad. [*Bufo marinus*].
(5) A tiger beetle for rhinoceros beetle control in Samoa. [*Catascopus facialis* as predator of *Oryctes rhinoceros*].

LUCCHESE, Elio. Contributi alla conoscenza dei Lepidotteri del melo. II. (*Aegeria typhiaeformis* Bkh.). *Bollettino del Laboratorio di Zoologia generale e agraria della Facoltà Agraria in Portici*, Spoleto, 1939, vol. XXXI, pp. [158]-195, figg. I-XXXIV. Bibliografia, p. 195.
[See also this *Bulletin*, 1938, No. 11, p. 527].

LYNCH, P. B. Brown heart in swedes. Minimum application of 15 lb. borax per acre will usually give satisfactory results. *The New Zealand Journal of Agriculture*, Wellington, 1939, Vol. 59, No. 4, pp. 319-320, 2 figs.

MARLOTH, Raimund H., and STOFBERG, F. J. Effect of arsenic and copper sprays on Navel oranges. *Farming in South Africa*, Pretoria, 1939, Vol. XIV, No. 158, pp. 180-181.

MARTELLI, G. M. Il *ghibli* come fattore ecologico negativo per la vita degli insetti. *Agricoltura Libica*, Tripoli, 1939, anno VIII, n. 11, pp. [505]-511. Bibliografia, p. 511.

MENDES, Luiz O. T. A " broca do café " não ocorre em Haití. *Revista do Instituto de Café do Estado de S. Paulo*, S. Paulo, 1939, ano XIV, num. 148, pags. 549-551.
[*Stephanoderes hampei* has not been recorded in Haiti].

MENDES, Luiz O. T. Tambem na Guiana Holandesa não ocorre a " broca do café ". *Revista do Instituto de Café do Estado de S. Paulo*, S. Paulo, 1939, ano XIV, num. 149, pags. 664-665.
[*Stephanoderes hampei* does not occur in Dutch Guiana].

MEYER, A. H. Derrisbestuiving ter bestrijding van Helopeltis. *De Bergcultures*, Batavia 1939, 13e jaarg., no. 42, blz. 1487.

MOORE, W. C. Diseases of bulbs. *Ministry of Agriculture and Fisheries. Bulletin No. 117*, London, 1939, VI + 176 pp., 58 figs. List of literature references, pp. 152-176. Price 4*s.*0*d.* net.
[Diseases of:— hyacinth, tulip, lily, other Liliaceae, narcissus, snowdrop, gladiolus, iris, crocus, and other Iridaceae].

NEL, J. J. Wild " morning glory " or field bindweed. *Farming in South Africa*, Pretoria, 1939, Vol. XIV, No. 154, pp. 31-32, figs. 1-4.
[*Convolvulus arvensis*].

OLDHAM, Chas. H. Red core disease of strawberries. *The Gardeners' Chronicle*, London, 1939, Third Series, Vol. CVI, No. 2760, p. 309.
[*Phytophthora* sp.].

PARHAM, B. E. V. Notes on weeds in Fiji. — II. *Lythrum hyssopifolium* Linn. *Agricultural Journal*, Suva, 1939, Vol. 10, No. 1, p. 21.

PEGLION, Vittorio. Degenerazione e rigenerazione del pesco. *L'Italia Agricola*, Roma, 1939, anno 76, n. 11, pp. [809]-814.

PETTEY, F. W. The protection of spineless cactus plantations against Cactoblastis. *Farming in South Africa*, Pretoria, 1939, Vol. XIV, No. 154, pp. 23-24, 40, figs. 1-2.

PETURSON, B., and NEWTON, Margaret. The effect of leaf rust on the yield and quality of Thatcher and Renown wheat in 1938. *Canadian Journal of Research*, Ottawa, 1939, Vol. 17, Sec. C, No. 11, pp. 380-387. References, p. 387.
[*Puccinia triticina*].

POGGI, G., [e] CAVALLINI, F. Nuovo contributo sull'impiego del rotenone come insetticida. Udine, Stabilimento tipografico friulano, 1939, 31 pp., 12 figg., 1 tav. (Consorzio provinciale per la viticoltura. Stazione chimico-agraria, Udine).

PRUTHI, Hem Singh, and BATRA, H. N. The phytophagous chalcidoid, *Eurytoma samsonovi* Vas., a serious pest of apricot and some other fruits in India. *The Indian Journal of Agricultural Science*, New Delhi, 1939, Vol. IX, Pt. II, pp. 277-283, pl. XI. References, p. 283.

PRUTHI, Hem Singh, and SAMUEL, C. K. Entomological investigations on the leaf curl disease of tobacco in northern India. III. The transmission of leaf-curl by white-fly, *Bemisia gossypiperda*, to tobacco, sann-hemp and a new alternate host of the leaf-curl virus. *The Indian Journal of Agricultural Science*, New Delhi, 1939, Vol. IX, Pt. II, pp. 223-275, fig. 1, p.ls VII-X. References, p. 246.
[*Ageratum conyzoides* is the new host of the above-mentioned virus].

PRYOR, Dean E., and WALKER, J. C. A method for testing the toxicity of volatile compounds. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 7, pp. 641-643, fig. 1.

RADOSLAWOFF, Al. VII-r Beitrag zur Flora der parasitischen Pilze Bulgariens. *Bulletin de la Société Botanique de Bulgarie*, Sofia, 1939, vol. VIII, p. [50]-54. [In Bulgarian, with title and summary also in German].

REMISZEWSKI, T. Emulsja olejowa z dodatkiem dinitrokrezolu jako ciecz do oprysków zimowych. *Rocznik Ochrony Roślin*, Puławy 1939, tom VI, zeszyt 3, str. 71-72.
[In Polish, with title and summary also in English:— 'Mineral oil with dinitrocresol as a winter wash'].

REEVES, E. L., YOTHERS, M. A., and MURRAY, C. W. Unusual development of apple perennial canker, following application of toxic wound dressings. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 8, pp. 739-743, fig. 1. Literature cited, p. 743.
[*Gloeosporium perennans*].

REICHERT, I., and HELLINGER, Esther. Dothiorella rot of bananas and oranges in Palestine. *Palestine Journal of Botany*, Rehovot, 1938, Rehovot Series, Vol. II, No. 1, pp. [79]-88, pl. VIII. Literature cited, pp. 87-88.
[*Dothiorella* sp.].

RICHTER, H. Der Pflanzenschutz auf der 5. Reichsnährstands- Austellung Leipzig 1939. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1939, 19. Jahrg., Nr. 7, S. [57]-58, Abb. 1-2.
[*Rhizoctonia solani*, *Thielavia basicola*, *Fusarium oxysporum*, *Macrosporium sarcinaeforme*, *Ceratophorum setosum*, *Uromyces venovatus*, *U. lupinicolus*].

RICHTER, H. Lupinenkrankheiten. *Mitteilungen aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem*, Berlin 1938, Heft 58, S. [87]-101, Abb. 1-17.

ROACH, W. A. Plant injection for diagnostic and curative purposes. Foreword by V. H. Blackman. *Imperial Bureau of Horticulture and Plantation Crops. Technical Communication No. 10*. East Malling, Kent, England, 1938, 78 pp., 47 figs., 2 pls. References, pp. 72-78.

ROMNEY, V. E. Breeding areas and economic distribution of the beet leafhopper in New Mexico, southern Colorado, and western Texas. *United States Department of Agriculture. Circular No. 518*, Washington, D. C., 1939, 14 pp., 3 figs. Literature cited, pp. 13-14.
[*Eutettix tenellus*].

ROOS, K. Das Kirschbaumsterben im Baselland. 2. Mitteilung: Die Erscheinungsformen der Krankheit. *Landwirtschaftliches Jahrbuch der Schweiz*, Bern 1939, 53. Jahrg., Heft 3, S. [233]-258, Abb. 34-60.
[For the first part of this work see this *Bulletin*, 1938, No. 12, p. 285. — Summaries in German and in French].

ROSELLA, Etienne. La lutte contre les pucerons des arbres fruitiers et des cultures horticoles. *La Vie Agricole et Rurale*, Paris, 1939, 29e année, nº 5, p. 196-200.

ROZENDAAL, A. Enkele opmerkingen over een virusziekte bij de aardappelvarieteit Eersteling, en het verband met de stippelstreepziekte. *Instituut voor Phytopathologie. Laboratorium voor Mycologie en Aardappelonderzoek. Mededeeling 81*, Wageningen 1939, 26 blz., 15 fig.
[In Dutch, with title and summary also in English:— 'Some remarks on a virus disease of the potato variety Duke of York, and its connection with the stipple-streak disease'].

RUSSO, Giuseppe. Il fleotribo dell'olivo (*Phloeotribus scarabaeoides* Bern.). *R. Laboratorio di Entomologia agraria presso la R. Facoltà di Agraria di Portici. Circolare n. 8*, Portici, 1939, 22 pp., 16 figg.

SADASIVAN, T. S. Competition in fungi. I. A study of the growth reactions of non-parasitic fungi in associated culture. *Proceedings of the Indian Academy of Sciences*, Bangalore City, 1939, Vol. X, Sec. B, No. 1, pp. 1-26, figs. 1-15, pl. I. Literature cited, pp. 25-26.
[*Fusarium* sp. and *Dendryphiella* sp.; *Fusarium* sp. and *Gibberella* sp.; *Phoma* sp. and *Helminthosporium* sp.; *Phoma* sp. and *Monilia* sp.; *Phoma* sp. and *Dendryphiella* sp.].

SALAZAR, Clery G. Fumigación y preservación de los diferentes granos. *El Agricultor Venezolano*, Caracas, 1939, año IV, nos. 36-37, págs. 45 y 46, 3 figs.

SANSON, J. Les grands froids de décembre 1938. *La Vie Agricole et Rurale*, Paris, 1939, 29e année, nº 4, p. 159-161.

SATTAR, Abdus, and MALIK, Saied Ahmad. Some studies on anthracnose of mango caused by *Glomerella cingulata* Stonem. (S. & V. S.) (*Colletotrichum gloeosporioides* Penz.) in the Punjab. *The Indian Journal of Agricultural Science*, Delhi, 1939, Vol. IX, Pt. III, pp. 511-521, figs. 1-2, pls. XXI-XXII. References, p. 521.

SĂVULESCU, Tr., si SANDU-VILLE, Const. Încercări pentru stabilirea raselor fiziologice la cele două specii de Tilletia ce produc malura grâului în România. *Analele Institutului de Cercetări Agronomice al României*, Bucureşti, 1939, vol. X, anul IX (1938), pag. 518-631.
[In Rumanian, with summary in German. — *Tilletia tritici*, *T. foetens*].

SAWADA, Kaneyoshi. The blast disease and fertilizer of rice plants. VI. Relation among the leaf tissue, the disease on leaves and quantity of fertilizers. *The Formosan Agricultural Review*, Taihoku, Taiwan, Nippon, 1939, Vol. 35, No. 4, pp. [251]-259.
[In Japanese, with title also in English. — *Piricularia oryzae*].

SAWADA, Kaneyoshi. The blast disease and fertilizer of rice plants. VII. Relation among the tissue of panicle stalks, the disease on the stalks and quantity of fertilizers. *The Formosan Agricultural Review*, Taihoku, Taiwan, Nippon, 1939, Vol. 35, No. 5, pp. 383-387.
[In Japanese, with title also in English].

SAWADA, Kaneyoshi. The blast disease and fertilizer of rice plants. VIII. Relation among the tissue of stem nodes, the disease on the nodes and quantity of fertilizers. *The Formosan Agricultural Review*, Taihoku, Taiwan, Nippon, 1939, Vol. 35, No. 6, pp. 444-449.
[In Japanese, with title also in English].

SCHAAL, L. A. Penetration of potato-tuber tissue by Rhizoctonia solani in relation to the effectiveness of seed treatment. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 8, pp. 759-760, fig. 1.

SCHAPER, Paul. Das Verhalten verschiedener Wildspezies gegen den Kartoffelkäfer. *Mitteilungen aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem*, Berlin 1938, Heft 58, S. [55]-60.
[*Leptinotarsa decemlineata*].

SCHAPER, Paul. Das Verhalten der wichtigsten Kultursorten gegen den Kartoffelkäfer im freier Befall. *Mitteilungen aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem*, Berlin 1938, Heft 58, S. [61]-67.
[*Leptinotarsa decemlineata*].

SCHLICHTING, Ilse. Untersuchungen über die physiologische Spezialisierung des Weizenmehltaus, Erysiphe graminis tritici (D. C.) in Deutschland. Vorläufige Mitteilung. *Kühn-Archiv*, Berlin 1938/39, Bd. 48, S. [52]-55.

SCOTT, L. B., and MILAM, Joe. Cryolite dips as a control measure for the corn root webworm on newly set tobacco plants. *Journal of Economic Entomology*, Menasha, Wisconsin, 1939, Vol. 32, No. 3, p. 469.
[*Crambus caliginosellus*].

SCHWARTZ, Martin, und MÜLLER- BÖHME, Helmut. Untersuchungen über die Kartoffelkäfer-Widerstandsfähigkeit von Kartoffelwildformen und von Kreuzungen solchen Wildformen mit Kulturformen. *Mitteilungen aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem*, Berlin 1938, Heft 58, S. [47]-54.
[*Leptinotarsa decemlineata*].

SCHWARTZE, C. D., and HUBER, Glenn A. Further data on breeding mosaic-escaping raspberries. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 7, pp. 647-648.

SEMPIO, Cesare. La Patologia vegetale al recente Congresso internazionale di Patologia comparata. *Rivista di Patologia Vegetale*, Pavia, 1939, anno XXIX, nn. 5-6, pp. 332-336.

SHARP, S. S. Agar-agar, a new activator for nicotine sprays. *Journal of Economic Entomology*, Menasha, Wisconsin, 1939, Vol. 32, No. 3, pp. 394-395. Literature cited, p. 395.

SHOTWELL, Robert L. The species and distribution of grasshoppers in the 1938 outbreak. *The Insect Pest Survey Bulletin*, [Washington, D. C.], 1939, Vol. 19. Supplement to No. 4, pp. 179-270, 1 map. [Mimeographed].
[*Melanoplus* spp., *Dissosteira longipennis, Camnula pellucida, Aeoplus turnbullii*, etc.]

SILVESTRI, F[ilippo]. Importanza dell'entomologia nell'economia mondiale. *VII. Internationaler Kongress für Entomologie, Berlin, 15.-20. August 1938*. Weimar, Druck von G. Uschmann, 1939, S. [1506]-1522.

SILVESTRI, F[ilippo]. La lotta contro la mosca delle olive. Estratto dagli Atti del Convegno Nazionale di Olivicoltura tenutosi a Bari nel settembre 1938-XVI. Roma, Stab. tipografico Ramo editoriale degli Agricoltori, 1939-XVII, 20 pp.
[*Dacus oleae*].

SIMMONDS, P. M. A review of the investigations conducted in western Canada on root rots of cereals. *Scientific Agriculture*, Ottawa, Canada, 1939, Vol. XIX, No. 9, pp. 565-582. Bibliography, pp. 577-582.
[*Ophiobolus graminis*, *Leptosphaeria herpotrichoides*, *Fusarium* spp., *Helminthosporium sativum*, *Pythium* spp., *Cercosporella herpotrichoides*, etc.].

SMIT, C. J. B. Field observations on the brown locust in an outbreak centre. *Union of South Africa. Department of Agriculture and Forestry. (Locust Research Series No. 5.). Science Bulletin No. 190*, Pretoria, 1939, 143 pp., 34 figs. References, pp. 142-143.
[*Locustana pardalina*].

SMITH, Clayton O., and COCHRAN, L. C. Rust on the California native Pruni. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 7, pp. 645-646, fig. 1.
[*Tranzschelia pruni-spinosae*].

SMITH, Ralph H. European red mite in southern California. *Bulletin of the Department of Agriculture, State of California*, Sacramento, 1939, Vol. XXVIII, No. 6, pp. 412-415. Literature cited, pp. 414-415.
[*Paratetranychus pilosus*].

SMITH, Ralph W. Grasshopper injury in relation to stem rust in spring wheat varieties. *Journal of the American Society of Agronomy*, Geneva, N. Y., 1939, Vol. 31, No. 9, pp. 818-821. Literature cited, pp. 820-821.
[*Melanoplus americanus* and *Puccinia graminis*].

SOIL CONSERVATION SERVICE, DEPARTMENT OF AGRICULTURE, KENYA COLONY. Soil conservation in pyrethrum fields. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Amani, 1939, Vol. V, No. 1, pp. 47-56, 2 figs., 14 graphs.

SONAN, Jinhaku. On the tea bark-eating borer (*Linoclostis gonatias* Meyrick). *The Formosan Agricultural Review*, Taihoku, Taiwan, Nippon, 1939, Vol. 35, No. 4, pp. 279-283, figs. 1-4.
[In Japanese, with title also in English].

STANDEN, J. H. Prevalence of Basisporium gallarum in arrested axillary shoots and secondary ears of maize. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 7, pp. 656-657.

STEINER, L. F. Distances traveled by newly hatched codling moth larvae. *Journal of Economic Entomology*, Menasha, Wisconsin, 1939, Vol. 32, No. 3, p. 470.
[*Cydia pomonella*].

STEINER, L. F., and FAHEY, J. E. The effects of neutral copper fungicides on tank-mix-nicotine-bentonite in control of the codling moth. *Journal of Economic Entomology*, Menasha, Wisconsin, 1939, Vol. 32, No. 3, pp. 365-369, fig. 1. Literature cited, p. 369.

STEVENSON, G. C. The inheritance of gumming disease resistance in sugarcane breeding. *Department of Agriculture, Mauritius. Sugarcane Research Station. Bulletin No. 15*, Port Louis, Mauritius, 1939, 9 pp. References, pp. 8-9.
[*Bacterium vasculorum*].

STÖRMER. Die praktische Bekämpfung der Viruskrankheiten bei der Kartoffel. *Mitteilungen aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem*, Berlin 1938, Heft 58, S. [37]-46, Abb. 1-4.

STRAIB, W. Zum epidemischen Auftreten des Leinrostes in Ostpreussen. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1939, 19. Jahrg., Nr. 6, S. [49]-51. Schriftenverzeichnis, S. 51.
[*Melampsora lini*].

STRAIB, W. Zur Kenntnis der Keimschlauchwachstums der Uredosporen einiger Getreiderostarten und ihrer Rassen. *Berichte der Deutschen Botanischen Gesellschaft*, Berlin-Dahlem 1939, Bd. LVII, Heft 4, S. [136]-154, Abb. 1-4, Taf. II-V. Zitierte Literatur, S. 152-153.
[*Puccinia glumarum, P. triticina, P. dispersa, P. simplex, P. hordei, P. coronata, P. graminis*].

STRAWIŃSKI, Konstanty. Krytyczny przegląd owadów z rzędu *Hemiptera-Heteroptera* (pluskwiaki różnoskrzydłe) zarejestrowanych przez Zakłady Ochrony Roślin w Polsche w latach 1919-1933. *Rocznik Ochrony Roślin*, Puławy 1939, tom VI, zeszyt 3, str. 20-50. Piśmiennictwo, str. 46-48.
[In Polish, with summary also in German. — A review of the Hemiptera Heteroptera observed in Poland during 1919-1933].

SY, M. Ergebnisse der Versuche über die Gefährdung von Singvögeln durch arsenhaltige Pflanzenschutzmittel. *Mitteilungen aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem*, Berlin 1938, Heft 58, S. [103]-113, Fig. 1-8.

SYRE, H. Theorie und Praxis der Phytophthora-Bekämpfung. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1939, 19. Jahrg., Nr. 8, S. [69]-75. Schriftenverzeichnis, S. 75.
[*Phytophthora infestans*].

SZYMAŃSKI, W. Przyczynek do analizy karbolineum sadowniczego. *Rocznik Ochrony Roślin*, Puławy 1939, tom VI, zeszyt 3, str. 9-13.

SZYMAŃSKI, W. Chemiczna analiza karbolineum sadowniczego. *Rocznik Ochrony Roślin*, Puławy 1939, tom VI, zeszyt 3, str. 14-19.

TAKAHASHI, Ryoichi. Life history and control methods of *Pulvinaria polygonata* Ckll. (Coccidae). *The Formosan Agricultural Review*, Taihoku, Taiwan, Nippon, 1939, Vol. 35, No. 6, pp. [403]-414, figs. 1-7. [Bibliography], pp. 411-412.
[In Japanese, with title and summary also in English].

TASUGI, H., and IKEDA, Y. Microorganisms on the rice grain hulled by the disc-mill- and the rubber-roll-huller. *Annals of the Phytopathological Society of Japan*, Tōkyō, 1939, Vol. VIII, No. 4, pp. [339]-342.
[In Japanese, with title also in English].

TAVARES, I[van]. A antracnóse da manga. *Boletim da Secretaria de Agricultura, Industria e Comercio, Estado de Pernambuco*, Recife, 1938, vol. III, nº 1, pags. [28]-30, figs. 1-7. Bibliografia, pag. 30.
[*Colletotrichum gloeosporioides* on *Mangifera indica*].

TAVARES, Ivan. Catalogo dos fungos de Pernambuco. *Boletim da Secretaria de Agricultura, Industria e Comercio, Estado de Pernambuco*, Recife, 1939, vol. IV, nº 1, pags. [1]-33, fot. 1-58.
[In the first part of this catalogue the species of Polyporaceae observed in Pernambuco State are listed].

TAVARES, Ivan. Macrosporiose da cebôla. *Boletim da Secretaria de Agricultura, Industria e Comercio, Estado de Pernambuco*, Recife, 1939, vol. IV, nº 1, pags. [45]-48, 4 figs.
[*Macrosporium* sp. on *Allium cepa*].

THOMAS, K. M., [and] KRISHNASWAMI, C. S. Leaf crinkle – a transmissible disease of papaya. *Current Science*, Bangalore, 1939, Vol. 8, No. 7, p. 316, fig. 1.

THOMPSON, W. R. Biological control and the theories of the interactions of populations. *Parasitology*, London, 1939, Vol. 31, No. 3, pp. 299-388, fig. 1. References, pp. 382-388.

TIMSON, S. D. Compost and witchweed. *The Rhodesia Agricultural Journal*, Salisbury, 1939, Vol. XXXVI, No. 7, pp. 531-533.
[*Striga*].

TRAPPMANN, W. O zastosowaniu emulsyi olejowych do oprysków zimowych w Niemczech. *Rocznik Ochrony Roślin*, Puławy 1939, tom VI, zeszyt 3, str. 51-52.
[A translation in Polish of the following note in German].

TRAPPMANN, W. Über die Anwendung von Ölemulsionen als Winterspritzmittel in Deutschland. *Rocznik Ochrony Roślin*, Puławy 1939, tom VI, zeszyt 3, str. 53-54.

TROTTER, A[lessandro]. La diffusion des maladies et des parasites du tabac peut-elle être limitée ? *Le Tabac*, Rome, 1939, 2me année, nº 1, p. 20-22.

TROTTER, A[lessandro]. Kann die Verbreitung der Krankheiten und der Schädlinge des Tabaks eingeschränkt werden ? *Le Tabac*, Rome, 1939, 2me année, nº 1, p. 23-25.
[A translation of the above mentioned article].

TRZEBIŃSKI, Józef. Choroby wirusowe (wirozy) roślin uprawnych. *Rocznik Ochrony Roślin*, Puławy 1939, tom VI, zeszyt 3, str. [1]-8. Piśmiennictwo, str. 7-8.
[In Polish, with summary also in German. — Virus diseases in Poland].

ULLYETT, G. C. The encouragement of beneficial insects. *Union of South Africa. Department of Agriculture and Forestry. (Plant Industry Series No. 27). Bulletin No. 189*, Pretoria, 1938, 10 pp., 4 figs.

VAN KOOT, Y. De belangrijkste virusziekten van de tomaat in Nederland. *Ministerie van Economische Zaken. Directie van den Landbouw. Mededeelingen van den Tuinbouw-Woorlichtingsdienst. N°. 10*, 's-Gravenhage 1939, 23 blz., 6 afb. Literatuur, blz. [23].
[The chief virus diseases of the tomato in the Netherlands].

VAN KOOT, Y. De belangrijkste virusziekten van de tomaat in Nederland. *Instituut voor Phytopathologie. Laboratorium voor Mycologie en Aardappelonderzoek. Mededeeling 83*, Wageningen 1939, 25 blz., 5 afb. Literatuur, blz. [25].
[In Dutch, with title and summary also in English:—' 'The most important virus diseases of the tomato in the Netherlands ']. '

VAN SCHREVEN, D. A. De gezondheidstoestand van de aardappelplant onder den invloed van twaalf elementen. (The influence of twelve chemical elements on the state of health of the potato plant). Wageningen, H. Veenman & Zonen, 1939, 166 blz., 30 fig. Literatuur, blz. [143]-157.
[In Dutch, with title and summary also in English].

VANTERPOOL, T. C. Homothallism in Pythium. *Mycologia*, Lancaster, Pa., 1939, Vol. XXXI, No. 2, pp. 124-127. Literatured cited, pp. 126-127.

VASUDEVA, R. Sahai, and RAFIQUE, Mohammad. Studies on the root-rot disease of cotton in the Punjab. VI. Chemical composition of healthy and diseased cotton plants. *The Indian Journal of Agricultural Science*, New Delhi, 1939, Vol. IX, Pt. II, pp. 331-342. References, p. 342.
[*Rhizoctonia solani* and *R. bataticola* (?)].

VENTRE, Jules. Contribution biochimique à l'étude des vins eudémisés. *Annales de l'Ecole nationale d'Agriculture de Montpellier*, Montpellier, 1939, n. s., tome XXV, fasc. III et IV, p. [203]-253, fig. 1-6. Bibliographie, p. 252-253.
[*Polychrosis botrana*].

VIDAL, J.-L. Le froid et la vigne au pays du cognac. *Comptes rendus hebdomadaires des séances de l'Académie d'Agriculture de France*, Paris 1939, tome XXV, nº 5, p. 197-202.

VILLENEUVE DE JANTI, J. Une nouvelle espèce du genre *Blaesoxypha* parasite des sauterelles en Italie. (Dipt. Sarcoph.). *Bollettino della Società Entomologica Italiana*, Genova, 1939, vol. LXXI, nn. 6-7, pp. 114-115, fig. 1.
[*Bl. paolii*, a parasite of *Dociostaurus maroccanus* in Apulia. — See also the paper of G. Paoli (this *Bulletin*, 1939, No. 10, p. 250)].

VINAS, J[ean]. Les poudres cupriques. Méthodes de fabrication et emploi. *Bulletin Oenologique et Viticole*, Alger, 1939, 12e année, nº 131, p. 39-45. Bibliographie, p. 45.

VOLLERT, H.-E. Nicht nachlassen in der Kartoffelkäfer-Bekämpfung ! *Mitteilungen für die Landwirtschaft*, Berlin 1939, 54. Jahrg., Heft 39, S. 8651.
[*Leptinotarsa decemlineata*].

VOLODINA, Z. S. Contribution to the ecology and biology of rodents of the Troitsk region, Cheliabinsk province. 5. The fauna of forest biotopes (Micromammalia) and conditions influencing its qualitative composition. *Bulletin de l'Institut des Recherches Biologiques de Perm*, Perm, 1938, tome XI, livr. 7-8, p. [213]-220.
[In Russian, with title and summary also in English. – *Evotomys rutilus, Microtus gregalis, Silvaemus silvaticus, Sorex araneus, Cricetus*, etc.].

WALLACE, G. B. Plant diseases spread by bugs. *The East African Agricultural Journal of Kenya, Tanganyika, Uganda and Zanzibar*, Amani, 1939, Vol. IV, No. 4, pp. 268-271.

WALLACE, James M. Recovery from and acquired tolerance of curly top in Nicotiana tabacum. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 8, pp. 743-745, figs. 1-4.
[A virus disease].

WALKER, Harry G., and ANDERSON, Lauren D. Further notes on the control of the harlequin bug. *Journal of Economic Entomology*, Menasha, Wisconsin, 1939, Vol. 32, No. 2, pp. 225-228. Literature cited, p. 228.
[*Murgantia histrionica*].

WATANABE, Tatsuwo. Studies on the fire-blight disease of udo salad plant. *Annals of the Phytopathological Society of Japan*, Tôkyô, 1939, Vol. VIII, No. 4, pp. [271]-297, figs. 1-13. [Bibliography], pp. 294-295.
[In Japanese, with title and summary also in English. — *Phoma araliae* var. *microspora* n. var. on *Aralia cordata*].

WEBER, George F. Web-blight, a disease of beans caused by Corticium microsclerotia. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 7, pp. 559-575, figs. 1-7. Literature cited, pag. 575.
[*Corticium microsclerotia* (Matz) n. comb. Syn. *Rhizoctonia microsclerotia* Matz].

WENZL, H[ans]. Phyllosticta prunicola Sacc. var. pruni-avium Jaap auf Kirsche und Steinweichsel. *Neuheiten auf dem Gebiete des Pflanzenschutzes*, Wien 1938, 31. Jahrg., Folge 3, S. 195.

WENZL, Hans. Die "Brennfleckenkrankheit" (*Colletotrichum lagenarium*) auf Zucker- und Wassermelone in Deutschland. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1939, 19. Jahrg., Nr. 8, S. 78-79, 1 Abb. Literatur, S. 79.
[On *Cucumis melo* and *Citrullus vulgaris*].

WIANT, James S., IVANOFF, S. S., and STEVENSON, John A. White rust of spinach. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 7, pp. 616-623, figs. 1-2 Literature cited, p. 623.
[*Albugo occidentalis*].

WIESMANN, R. Vom Blattfrass der Obstmade. *Schweizerische Zeitschrift für Obst- und Weinbau*, Wädenswil 1939, 48. Jahrg., Nr. 15, S. 267-272, Abb. 1-2.
[*Cydia pomonella*].

WIESMANN, R. Ein Reblausherd in Vilters, Kanton St. Gallen. *Schweizerische Zeitschrift für Obst- und Weinbau*, Wädenswil 1939, 48. Jahrg., Nr. 18, S. 364-365. [*Dactylosphaera vitifolii*].

WILLE, Johannes E. Las queresas de las plantas cítricas y métodos para combatirlas. *Ministerio do Fomento. Dirección de Agricultura y Ganadería. Instituto de Altos Estudios Agrícolas del Perú. Estación Experimental Agrícola de La Molina. Circular No. 46* (segunda edición), Lima-Perú, 1939, 14 págs., 9 figs. [*Lepidosaphes beckii, Selenaspidus articulatus, Lecanium* (*Saissetia*) *oleae, L.* (*Coccus*) *hesperidum, Chionaspis citri, Pseudococcus* sp.].

WILLE, Johannes E. Informes sobre el VII Congreso internacional de Entomología de Berlín, y sobre el viaje de estudio a Europa y Egipto realizado en los meses de julio a octubre de 1938. *Ministerio de Fomento. Dirección de Agricultura y Ganadería. Instituto de Altos Estudios Agrícolas del Perú. Estación Experimental Agrícola de La Molina. Informe No. 49*, Lima-Perú, 1939, 18 págs., 15 figs.

WILLE, J[ohannes] E., OCAMPO, J. Alcides, WÉBERBAUER, A[ugusto], SCHOFIELD, D[aniel]. El cube (Lonchocarpus utilis) y otros barbascos en el Perú (2a. edición corregida, del Boletin No. 11, junio 1937). *Ministerio de Fomento. Dirección de Agricultura y Ganadería. Instituto de Altos Estudios Agrícolas del Perú. Estación Experimental Agrícola de La Molina. Boletín No. 16*, Lima-Perú, 1939, 129 págs., 31 figs. Bibliografía, págs. 123 a 129.

[For the first edition of this Bulletin, see this *Bulletin*, 1938, No.1, p. 23. — *Lonchocarpus nicou, Tephrosia toxicaria, Apurimacia michelii, Dictyoloma peruvianum, L. utilis.* — According to B. A. Krukoff and A. C. Smith the 'barbasco' or 'cube' cultivated in Peru is not *L. nicou* but *L. utilis*].

WILLIAUME, F. Les poudreuses en horticulture. *Revue Horticole*, Paris, 1939, 111e année, nouv. sér., tome XXVI, nº 16, p. 385-386, fig. 289.

WILLIS, H. R. Painting for determination of grasshopper flights. *Journal of Economic Entomology*, Menasha, Wisconsin, 1939, Vol. 32, No. 3, pp. 401-403. [*Dissosteira longipennis, Melanoplus mexicanus*].

WILSON, C. C. Grasshopper surveys in California. *Bulletin of the Department of Agriculture, State of California*, Sacramento, 1939, Vol. XXVIII, No. 2, pp. 170-173.

[*Camnula pellucida, Melanoplus* spp., *Oedaleonotus enigma, Sticthippus californicus, Dissosteira spurcata*].

WITTE, Karl. Zur Bekämpfung unserer wichtigsten tierischen Kohlschädlinge. Mehrjährige praktische Erfahrungen unter besonderer Berücksichtigung des Jahres 1938. *Deutsche Landwirtschaftliche Presse*, Berlin 1939, 66. Jahrg., Nr. 3, S. [27]-28, Abb. 27-28.

[*Psylliodes chrysocephala, Phyllotreta nemorum, Brevicoryne brassicae, Contarinia torquens, Chortophila brassicae, Pieris brassicae, P. rapae, Mamestra brassicae*].

WOLF, Frederick A. Leafspot of ash and Phyllosticta viridis. *Mycologia*, Lancaster, Pa., 1939, Vol. XXXI, No. 3, pp. 258-266, figs. 1-4. Literature cited, p. 266. [*Phyllosticta viridis* on *Fraxinus* spp. The perithecial stage has been determined as *Mycosphaerella fraxinicola*].

WOLF, Fred T., and WOLF, Frederick A. A study of Botryosphaeria Ribis on willow. *Mycologia*, Lancaster, Pa., 1939, Vol. XXXI, No. 2, pp. 217-227, figs. 1-19. Literature cited, pp. 226-227.

WOLFENBARGER, D. O., and BUCHANAN, W. D. Notes on elm twigs crotch injuries produced by *Scolytus multistriatus* Marsham. *Journal of Economic Entomology*, Menasha, Wisconsin, 1939, Vol. 32, No. 3, pp. 377-381, figs. 1-9. Literature cited, p. 381.

WOOD, F. C. Studies on " damping off " of cultivated mushrooms and its association with Fusarium species. II. *Phytopathology*, Lancaster, Pa., 1939, Vol. 29, No. 8, pp. 728-379, figs. 1-4, Literature cited, p. 739.

WORTHLEY, H. N., and STEINER, H. M. Control of apple aphids and European red mite by coal tar oil and other materials. *Journal of Economic Entomology*, Menasha, Wisconsin, 1939, Vol. 32, No. 2, pp. 278-286, figs. 1-3. Literature cited, pp. 285-286.
[*Anuraphis roseus*, *Paratetranychus pilosus*].

YUNG, V. C. A lagarta rosada. *Revista da Sociedade Rural Brasileira*, São Paulo, 1939, anno XIX, nº. 221, pags. 44-46.
[*Platyedra gossypiella*].

ZELENSKY, V. Contribution à l'étude de *Rhyacia saucia* Hbn. (Lépid. Noct.). *Revue de Zoologie agricole et appliquée*, Bordeaux, 1938, 37e année, nº 7, p. 103-112, fig. 14; nº 8, p. 120-122.

ZELENSKY, V. Contribution à l'étude de *Laphygma exigua* Hbn. (Lépid. Noct.) au Maroc. *Revue de Zoologie agricole et appliquée*, Bordeaux, 1938, 37e année, nº 9, p. 137-143, fig. 17.

ZEROVA, M. A fir-tree disease caused by the fungus Phomopsis piceae Zerova sp. nov. *Journal de l'Institut botanique de l'Académie des Sciences de la RSS d'Ukraine*, Kiev, 1939, nº 20 (28), p. [137]-143, fig. 1-6. [Bibliographie], p. 142.
[In Russian, with title and summary also in English. — The Latin diagnosis of the new species is given].

ZOLOTAREVSKY, B. Pullulation du criquet nomade en Afrique occidentale française. *L'Agronomie Coloniale*, Paris, 1939, 28e année, nº 257, p. 141-149, 1 carte.
[*Nomadacris septemfasciata*].

ŻUKOWSKI, Julian. Badania nad wpływem nawozów mineralnych na dżdżownice. *Rocznik Ochrony Roślin*, Puławy 1939, tom VI, zeszyt 3, str. 73-[99], rys. 1-5. Literatura, str. 97-98.
[In Polish, with title and summary also in German:— 'Forschungen über den Einfluss der Kunstdünger auf Regenwürmer'].

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Angelini, F. Prospettive autarchiche dell'agricoltura italiana. Roma, [Confederazione fascista dei lavoratori dell'agricoltura], 1939. 224 p.

Annuario delle casse rurali, agrarie ed enti ausiliari. Milano, F. Vallardi, 1936. 544 p. (Federazione nazionale fascista delle casse rurali, agrarie ed enti ausiliari aderente alla Confederazione fascista delle aziende del credito e dell'assicurazione).

Antonelli, G. Estimo rurale teorico pratico. Roma, Opera nazionale combattenti, [1939]. 292 p. (Collana agraria dell'Opera nazionale combattenti, 29).

American Cooperation 1939; a collection of papers comprising the 15th summer session of the American Institute of Cooperation at the University of Chicago, August 7 to 11 1939. Washington, [1939]. 695 p.

Arnoldi, W. Der Engelshof ehemals Rittergut Wendemark im Laufe der Jahrhunderte. Osterburg, A. Ronneburger, 1938. 59 p.

Berner, H. Alte Bauernhöfe im Amt Grohnde. Kreis Hameln-Pyrmont. Bockenem am Harz, H. Schrader, 1937. (Sonderdruck aus den Mitarbeiternachrichten der Landesbauernschaft Hannover, Bd. 3). v. 1.

Blais, R. La campagne. Paris, Presses universitaires de France, 1939. VIII 332 p. (Loisirs dans la nature).

Blanke, H. Emsländische Moorkolonien im Kreise Meppen. Osnabrück, A. Fromme, 1938. 232 p.

Blunt, E. A. H. Social service in India; an introduction to some social and economic problems of the Indian people. Written by six contributors. London, H. M. Stationery office, [1938]. xxiii, 477 p.

British Isles conference on agricultural co-operation, Aberystwith, 1939. Report of proceedings held at Abeystwith on June 9 and 10, 1939. London, P. S. King & son, 1939. xiv, 112 p.

Bürger, U. und O. Zietzschmann. Der Reiter formt das Pferd. Tätigkeit und Entwicklung der Muskeln des Reitpferdes. Hannover, M. & H. Schaper, 1939. 88 p.

Ciferri, R.; G. R. Giglioli. I cereali dell'Africa italiana. Firenze, R. Istituto agronomico per l'Africa italiana, 1939. v. 1. I frumenti dell'Africa orientale italiana studiati su materiali originali. 1939. 298 p.

3° **Congresso** internazionale del carbonio carburante. Roma 10-13 Settembre 1937. Atti del Congresso. v. 1-4. Roma, R. Automobile Club d'Italia, 1938. 4 v.

Danemark. Landbrugsraadet. Beretning om Landbrugsudstillingen paa Bellahøj 1938. ved Kai Johansen. Axelborg-København. 1939. 517 p.
[Descriptive account of the Agricultural Exhibition at Bellahøj, 1938].

Dalgety's Annual Wool Review for Australia and New Zeeland. Season 1938-39]. Compiled by Dalgety and co. ltd. 41st year of issue. [Sydney, J. Andrew & co., 1939]. 143 p.

Dawber, M. A. Rebuilding rural America. New York, Friendship press, [1937]. xiv, 210 p.

Documents on American Foreign Relations. January 1938-June 1939. Edited by S. Shepard Jones & Denys P. Myers. Boston, World Peace Foundation, 1939. 582 p.

Evelpidi, Chr. Theōria kai praxis agrotikēs politikēs kai oikonomias. Athēnai « Flamma », 1939. VII, 327 p.
[Theory and practice of rural policy and economy].

Ercole, F. Storia del fascismo. Milano, A. Mondadori, 1939. 2 v. (Panorami di vita fascista; collana edita sotto gli auspici del P. N. F.).

Fantini, O. Trattato di politica economica e finanziaria. Milano, Soc. editrice libraria, 1939. XII, 823 p.

Ferté, J. La comptabilité agricole en France; principes et conseils pratiques, rôle et organisation des offices. Paris, Maison rustique, 1939. 80 p.

Gentchev, I. Житарство: ржководство за стопанисване на зърнени и други храни, брашно и хлѣбъ. Софий, Ив. Генчевъ, [1938] [10], 243 p.
[Wheat: a handbook on the economic utilization of cereals and other grains, flour and bred].

Giacomelli G. Il frutteto da famiglia. Livorno, Tip. C. Frittelli, 1939. 75 p.

Gregorio Rocasolano, A. de. Aportación bioquimica al problema agricola del nitrógeno. Zaragoza, Talleres graficos de « El Noticiero », 1939. (Trabajos del Laboratorio de investigaciones bioquimicas de la Facultad de ciencias de la Universidad de Zaragoza). v. 3. 186 p..

Helm, R. Warum Reichsnährstand? 2. neubearb. Auflage. Berlin, H. Stubenrauch, 1939. 79 p. (Stubenrauchs deutsche Grundrisse. Grüne Reihe, Bd. 1).

Henne, A. Einfluss des Schweizerischen Forstvereins auf die Entwicklung des Forstwesens in der Schweiz, 1843-1938. Anlässlich der Landesausstellung 1939 in Zürich. Bern. Büchler & C., 1939. 144 p.

Ikonomikē epetēris tēs Ellados etos dekaton 1938 ekdidomenē choregia tēs Ethnikēs trapezēs tēs Ellados ypo G. Charitake. Athenai, Tip. S. K. Blastou, 1939. 307, 297 p.

Indian Year Book 1938/39. v. 25. Bombay, [etc.], B. Coleman, & co., [1939]. 1260 p.

Institut international de statistique. Aperçu de la démographie des divers pays du monde, 1929-1936. La Haye, Office permanent de l'Institut, 1939. 433 p.

Ivanitch, S. Z. Пољопривреда у Србији. Прилог за проучавање и народног здравља. Београд. Штампа " Планета " 1938. 127 p. (Зборник зарављствених проучаваньа и испитиваньа села а народног живота. Уредник Стеван З. Иваниъ. nº 6). (Библиотека Централног хигијенског завода, 28).
[Agriculture in Serbia. Contribution to the study of nutrition and public health].

Jacobsen, H. Die Kultur der sukkulenten Pflanzen. Berlin, P. Parey, 1939. 60 p. (Die gärtnerische Berufspraxis hrsg. von Karl Weinhausen. nº 17).

Kolev, L. Устройство на кредитната кооперация на нейната дейность и служби. Стара-Загора, П-ца " Свѣтлина ", 1938. 264 p.
[Structure and organisation of credits cooperatives.

Lindquist, B. Dalby Söderskog; en skånsk lövskog i forntid och nutid. Stockholm. Svenska Skogsvårdsförningens förlag, [1938]. 273 p.
[« Dalby Söderskog »: a forest in the Department of Skåne, to-day and in the past].

London. Institution of the rubber industry. Annual report on the progress of rubber technology. v. 1, 2. 1937, 1938. London, [1938-1939]. 2 v.

Luz, F., f. O cooperativismo no Brasil e sua evolução; historico, doutrina, legislação completa e commentada, critica e formularios. O cooperativismo agricola na Tchecoslovaquia actual e seus ensinamentos, Rio de Janeiro, A. Coelho Branco, 1939. 302 p.

Mai, E. Ackerbau in Afrika. Leipzig, Lühe & Cº., 1939. 78 p. (Europa blickt nach Africa).

Malusardi, E. Elemen diti storia del sindacalismo fascista. 3ª ed. [Lanciano], R. Carabba, [1938].

Mantino, G. Zootecnia e agricoltura calabrese. Vibo Valentia. Edizioni Michele Bonelli, 1939, 37 p.

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